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(54) **MAGNETOSTRICTIVE STRESS DETECTING  
 DEVICE**

can be concurrently detected.

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(57) Abstract:

**PURPOSE:** To concurrently detect the stress of multiple components by providing multiple sensors detecting the changes of the magnetic permeability changed in response to stress so that detecting faces having directivity are directed to prescribed angles.

**CONSTITUTION:** A magnetostrictive layer 201 is formed on a shaft 101, and detecting sensors 301-304 detect the changes of the magnetic permeability changed in response to the stress of the magnetostrictive layer 201. The sensors 301-304 are faced to the magnetostrictive layer 201 so that the detecting faces of the magnetic permeability changes having directivity are directed to prescribed angles, and they are installed at prescribed voids. The changes of the magnetic permeability generated on the magnetostrictive layer 201 are detected by four sensors 301-304 having directivity, the detected results are arithmetically processed by a signal processor 501. The torque component, the tensile and compressive component (Z-direction component), and X and Y-direction components (axial bending components in two directions)

